

DETAILED ACTION

1. Applicant's election of Group I, claims 1-8, in the reply filed on 28 March 2008 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

2. Claims 9-13 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 28 May 2008.

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1 and 4-8 are rejected under 35 U.S.C. 102(e) as being anticipated by Wakita et al (US 7,219,720).

This reference includes priority to an international (PCT) application that designated the United States and was published in the English language (as WO 2004/033978), and thus is considered to be entitled to the priority date of the 24 June 2003 of the prior US provisional application.

The applied reference has a common assignee with the instant application.

Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Wakita et al discloses a heat exchanger (Fig. 2) having the claimed structure including a plurality of flat hollow bodies (15, 16) arranged one above another in parallel at a spacing and extending in a left-right direction (Fig. 2), a communication member (3) disposed between left end portions of each adjacent pair of flat hollow bodies (15, 16) for holding the adjacent pair of flat hollow bodies in communication with each other therethrough (Fig. 2), a spacer in the form of a block (4) and disposed between right end portions of each adjacent pair of flat hollow bodies (Fig. 2), each of the flat hollow bodies comprises an upper and a lower flat wall elongated in the left-right direction (15, 16), a peripheral wall (18) interconnecting the upper and lower walls at peripheral edges thereof (Fig. 2), and a partition wall (19) dividing interior of the hollow body into two straight channels extending in the left-right direction (Fig. 2), a left end portion of each of the upper and lower walls being provided respectively at front and rear areas thereof on opposite sides of the partition wall with two through holes spaced apart in a front-rear direction for causing the respective channels to communicate with the communication member therethrough (Fig. 2), the partition wall (19) having a right end portion cut off to hold the two channels in communication with each other

therethrough (Fig. 2), the spacer (4) being provided with a bore extending therethrough in the front-rear direction (Fig. 2), the spacer (4) being positioned in corresponding relation (interpreted to mean adjacent to) with the cutoff portion of the partition wall (19) of the flat hollow body (Fig. 2), the spacer (4) has an inner peripheral surface (the surface adjacent the fins 6) defining the bore and provided with a plurality of ridges and/or furrows extending longitudinally of the bore (Fig. 2), each of the flat hollow bodies (15, 16) comprises upper and lower two flat plates (15, 16) elongated in the left-right direction and arranged one above the other at a spacing (Fig. 2), and a channel forming body disposed between and brazed to the two flat plates (Fig. 2), the channel forming body comprising two straight side bars (18) arranged between the upper and lower flat plates respectively at front and rear side edges thereof and extending in the left-right direction (Fig. 2), an intermediate bar (19) positioned between and spaced from the two side bars and extending in the left-right direction, two heat transfer area increasing portions (23) formed between the intermediate bar and the respective side bars integrally therewith and provided at an intermediate portion of the height of the bars (Fig. 2), and two end bars extending forwardly or rearwardly inward respectively from left ends of the side bars integral therewith and having inner ends bearing on and brazed to a left end of the intermediate bar respectively at front and rear side faces thereof (Fig. 2), the intermediate bar having a cutoff right end portion, the two heat transfer area increasing portions each having a cutoff left end portion, a left end portion of each of the upper and lower flat plates having two through holes formed respectively in front and rear areas thereof on opposite sides of the intermediate bar (Fig. 2), the

upper and lower flat plates providing the upper and lower walls respectively (Fig. 2), the upper and lower flat plates having respective right end portions each bent toward the other (15a, 16a), the bent end portions being lapped over and brazed to each other to provide a right wall portion of the peripheral wall (Fig. 4), the two side bars of the channel forming body providing front and rear side wall portions of the peripheral wall (Fig. 2), the end bars of the channel forming body providing a left wall portion of the peripheral wall (Fig. 2), the upper and lower flat plates are each made of an aluminum brazing sheet, and a channel forming body comprises an aluminum extrudate (see claim 2), an industrial machine comprising a heat exchanger and serving as an oil cooler (see claim 8), an industrial machine comprising a heat exchanger and serving as an aftercooler (see claim 11).

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 2, and 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakada et al (JP 8-233476) in view of Nishishita (5,751,414).

Nakada et al discloses a heat exchanger (Fig. 1) having the claimed structure including a plurality of flat hollow bodies (B) arranged one above another in parallel at a spacing and extending in a left-right direction (Fig. 3), a

communication member (9) disposed between left end portions of each adjacent pair of flat hollow bodies, a spacer in the form of a block (8) and disposed between right end portions of each adjacent pair of bodies (Fig. 3), each of the bodies having an upper and lower flat wall (3) elongated in the left right direction, a peripheral wall (12) interconnecting the upper and lower walls (3) at peripheral edges thereof, the channels communicating with the communication member therethrough (4 and 9), side bars arranged between the upper and lower flat plates, heat transfer area increasing portions (17) formed between the side bars (12), the upper and lower plates having through holes (4), the plates being flat plates (3) formed of brazing sheets (see abstract). While the English language abstract does not state whether the heat exchanger serves as an oil cooler or an aftercooler, the heat exchanger of Nakada et al would appear to be capable of such intended use.

Nakada et al does not disclose a partition wall dividing the interior into two channels, and both through holes provided at the same end. Nishishita discloses providing a partition wall in a flow path to divide the interior into two channels, the partition wall having a right end portion cut off to hold the two channels in communication with each other therethrough, and both through holed provided at the same end.

It would have been obvious in view of Nishishita to provide a partition wall dividing the interior of the channel of Nakada et al into two flow channels, the partition wall having a right end portion cut off to hold the two channels in

communication with each other therethrough, and both through holes provided at the same end, the motivation being to enable increasing the length of the flow path and providing both headers at the same end of the heat exchanger for easier installation of the device.

7. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakada et al (JP 8-233476) in view of Nishishita (5,751,414) in view of Nakada et al (JP 55-24673).

Nakada et al ('476) in view of Nishishita disclose a heat exchanger having the claimed structure with the exception of the spacer including a plurality of bores. However, Nakada et al ('673) discloses a block for use in a heat exchanger, where the block includes a plurality of bores extending in the front rear direction and arranged side by side in the left right direction. See the upper right and upper left figures in Fig. 2. It would have been obvious in view of Nakada et al ('673) to use a spacer block having bores extending in the front rear direction and arranged side by side in the left right direction in the heat exchanger of Nakada et al ('476) in view of Nishishita, the motivation being to reinforce the block to make it stronger.

8. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wakita et al (US 7,219,720).

Wakita et al disclose a heat exchanger having the claimed structure with the exception of the spacer having a left to right width larger than the length of the cutoff portion of the partition wall. However, it would have been obvious to give the spacer a left to right width larger than the length of the cutoff portion of the partition wall in the heat exchanger of Wakita et al, the motivation being to make the make the heat exchanger stronger.

9. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wakita et al (US 7,219,720) in view of Nakada et al (JP 55-24673).

Wakita et al disclose a heat exchanger having the claimed structure with the exception of the bores in the spacer extending in the front rear direction and arranged side by side in the left right direction. However, Nakada et al discloses a block for use in a heat exchanger, where the block includes bores extending in the front rear direction and arranged side by side in the left right direction. See the upper right and upper left figures in Fig. 2. It would have been obvious in view of Nakada et al to use a spacer block having bores extending in the front rear direction and arranged side by side in the left right direction in the heat exchanger of Wakita et al, the motivation being to make the block lighter in weight.

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Chevallier, Buchanan et al, Inoue et al, Nakada et al (6,170,567), and Rong are cited to show heat exchanger structure.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Teresa J. Walberg whose telephone number is 571-272-4790. The examiner can normally be reached on M-F 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler can be reached on 571-272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Teresa J. Walberg/
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